

## **REMARKS**

### **I. Introduction**

Claims 9 to 11 and 13 to 17 are pending in the present application. In view of the foregoing amendments and the following remarks, it is respectfully submitted that the present application is in condition for immediate allowance, and reconsideration is respectfully requested.

### **II. Objection to the Drawings**

Regarding the objection to the drawings, although Applicants do not necessarily agree with the merits of the objection, to facilitate matters, claims 14 and 15 have been amended without prejudice to delete the term "raised." Regarding the term "cross-section" in claim 13, the Examiner will note that 37 C.F.R. § 1.81(a) merely requires that an applicant "furnish a drawing of his or her invention where necessary for the understanding of the subject matter sought to be patented." Each of Figures 1a, 1b, 2a, 2b and 2c includes a top view of a sensor (1) including a first measuring electrode (10) and a second measuring electrode (15) and/or finger electrodes (40). Each of the measuring electrodes and finger electrodes are shown as having a length and a width, and since these electrodes exist in a three-dimensional world, they must have a thickness as well, even if not depicted in the Drawings. Therefore, one skilled in the art would realize that the above-mentioned electrodes have a cross-section and would not need to see a three-dimensional perspective view of the sensor (1) to understand the subject matter of claim 13. Accordingly, withdrawal of this objection is respectfully requested.

### **III. Rejection of Claims 13 to 15 Under 35 U.S.C. § 112, 1st ¶**

Claims 13 to 15 were rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the written description requirement. It is respectfully submitted that these claims adequately comply with the written description requirement for at least the following reasons.

Regarding the term "cross-section" in claim 13, as stated in M.P.E.P. 2163 II. 3. (b):

To comply with the written description requirement of 35 U.S.C. 112, para. 1, or to be entitled to an earlier priority date or filing date under 35 U.S.C. 119, 120 or 365(c), each claim limitation must be expressly, implicitly or ***inherently*** supported in the originally filed disclosure. When an explicit limitation in a claim "is not present in the written description

whose benefit is sought it must be shown that a person of ordinary skill would have understood, at the time the patent application was filed, that the description requires that limitation.” *Hyatt v. Boone*, 146 F.3d 1348, 1353, 47 USPQ2d 1128, 1131 (Fed. Cir. 1998). (Emphasis added).

As set forth in Section II of this response, each of the Figures show a top view of measuring electrodes and/or finger electrodes having a length, a width and, since the sensor of claim 13 is a three-dimensional device, a thickness. Therefore, all of the above-mentioned electrodes have a cross-section. In addition, one skilled in the art would understand that any of the above-mentioned electrodes would have a cross-section. Furthermore, the remark on page 3 of the Office Action, “the disclosed electrodes (Fig. 1, 2) seem to have virtually no cross-section,” is, in effect, an admission that the electrodes in Figures 1 and 2 do indeed have a cross-section. Moreover, regarding the assertion that the measuring area 12 is an area and not a volume between the electrodes, the Examiner will note that as disclosed on page 4, lines 9 to 10 of the Specification, “The space between measuring electrodes 10, 15 is used as measuring area 12... .”

Regarding the contention that the term “raised pattern” does not appear in the disclosure and contradicts Figures 1 and 2, although Applicants do not necessarily agree with the merits of this part of the objection, to facilitate matters, claim 14 has been amended without prejudice to recite that **the finger electrodes of at least one measuring electrode have structures along sides of the finger electrodes facing adjacent finger electrodes of the other measuring electrode, that the structures protrude from a remainder of their respective side, and that the structures are formed by regularly arranged geometric shapes**, and claim 15 has been amended to conform to the changes made to claim 14. Support for these amendments may be found, for example, on page 6, lines 19 to 30 of the Specification, as well as in Figures 2a, 2b and 2c.

Accordingly, it is respectfully submitted that claims 13 to 15 adequately comply with the written description requirement for at least the above reasons, and, in view of the foregoing, withdrawal of this objection is respectfully requested.

#### **IV. Rejection of Claims 9 to 11, 14 and 17 Under 35 U.S.C. § 103(a)**

Claims 9 to 11, 14 and 17 were rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of PCT Application Publication No. WO 2004/097392 (“Berger et al.”) and U.S. Patent No. 4,916,384 (“Ishida”). It is

respectfully submitted that the combination of Berger et al. and Ishida does not render these claims unpatentable for at least the following reasons.

Although Applicants do not necessarily agree with the merits of this rejection, to facilitate matters, claim 9 has been amended without prejudice to recite, in relevant part, that **the finger electrodes of at least one of the measuring electrodes have varying widths.**

Neither Berger et al., nor Ishida discloses, or even suggests, the above-mentioned feature. As is clear from Figure 1 of Berger et al., the interdigitated finger portions of comb electrodes (12, 13) have **constant widths** along their entire length. In addition, Applicants do not understand why the Office Action persists in alleging that Berger discloses that the width or area of the comb electrodes can vary at most up to one-tenth of the distance between the electrodes. **As is clear from paragraphs [0015] and [0035] of Berger, the thickness of the protective layer (14), not the width of the comb electrodes (12, 13), is at most one-tenth of the distance between comb electrodes (12, 13).** Furthermore, Ishida does not cure the deficiencies of Berger et al. with respect to at least the above-mentioned feature. Accordingly, it is respectfully submitted that the combination of Berger et al. and Ishida does not render unpatentable claim 9 and dependent claims 10, 11, 14 and 17 for at least these reasons.

Regarding claim 14, it is respectfully submitted that combination of Berger et al. and Ishida does not render this claim unpatentable for the following additional reasons. **Neither Berger et al., nor Ishida discloses, or even suggests, the features of claim 14 that the finger electrodes of at least one measuring electrode have structures along sides of the finger electrodes facing adjacent finger electrodes of the other measuring electrode, that the structures protrude from a remainder of their respective side, and that the structures are formed by regularly arranged geometric shapes.** As is clear from Figure 1 of Berger et al., the sides of the interdigitated finger portions of one of the comb electrodes (12, 13) facing the adjacent interdigitated finger portions of the other of the comb electrodes (12, 13) are smooth and do not include structures that protrude from the rest of the side. Accordingly, it is respectfully submitted that combination of Berger et al. and Ishida does not render unpatentable claim 14 for these additional reasons.

In view of the foregoing, withdrawal of this rejection is respectfully requested.

**V. Rejection of Claims 13 and 15 Under 35 U.S.C. § 103(a)**

Claims 13 and 15 were rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of Berger et al., Ishida and U.S. Patent No. 5,858,192 (“Becker et al.”). It is respectfully submitted that the combination of Berger et al., Ishida and Becker et al. does not render these claims unpatentable for at least the following reasons.

Claims 13 and 15 ultimately depend from claim 9 and therefore include all of the features of claim 9. As set forth in detail in Section IV of this response, neither Berger et al., nor Ishida discloses, or even suggests, at least the feature of claim 9 that the interdigitated finger electrodes of at least one of the measuring electrodes of a sensor for determining the concentration of particles in gases have varying widths. In addition, Becker et al. does not cure the deficiencies of Berger et al. and Ishida with respect to at least the above-mentioned feature. Accordingly, it is respectfully submitted that the combination of Berger et al., Ishida and Becker et al. does not render unpatentable claims 13 and 15, which depend from claim 9.

Regarding claim 13, it is respectfully submitted that the combination of Berger et al., Ishida and Becker et al. does not render this claim unpatentable for the following additional reasons. **Neither Berger et al., nor Ishida, nor Becker et al.**

**discloses, or even suggests, the feature of claim 13 that at least one of the measuring electrodes has a triangular cross-section, or the finger electrodes of at least one of the measuring electrodes have a triangular cross-section.**

The Office Action admits, on page 5, that the combination of Berger et al. and Ishida does not disclose or suggest the above-mentioned feature, but asserts, on page 8, paragraph 12, that column 5, lines 45 to 50 and column 4, line 11 of Becker et al. describe the above-mentioned feature. However, in column 5, lines 45 to 50, the term “triangle” refers to the geometrical relationship of a set of electrode elements to each other, not to a cross-section of the electrode elements. In addition, in column 4, lines 10 to 15, the term “triangular” refers to the shape of a spiral electrode array made up of individual electrode elements, not to the shape of the cross-section of the electrode elements. Accordingly, it is respectfully submitted that the combination of Berger et al., Ishida and Becker et al. does not render unpatentable claim 13 for these additional reasons.

In view of the foregoing, withdrawal of this rejection is respectfully requested.

**VI. Rejection of Claim 16 Under 35 U.S.C. § 103(a)**

Claim 16 was rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of Berger et al., Ishida and U.S. Patent No. 6,634,210 ("Bosch et al."). It is respectfully submitted that the combination of Berger et al., Ishida and Bosch et al. does not render this claim unpatentable for at least the following reasons.

Claim 16 depends from claim 9 and therefore includes all of the features of claim 9. As set forth above, neither Berger et al., nor Ishida et al. discloses, or even suggests, all of the features of claim 9. In addition, Bosch et al. is neither relied upon for disclosing or suggesting, nor does Bosch et al. disclose or suggest, all of the features of claim 9 not disclosed or suggested by the combination of Berger et al. and Ishida. Accordingly, it is respectfully submitted that the combination of Berger et al., Ishida and Bosch et al. does not render unpatentable claim 16, which depends from claim 9.

In view of the foregoing, withdrawal of this rejection is respectfully requested.

**VII. Conclusion**

It is therefore respectfully submitted that all of the presently pending claims are allowable. All issues raised by the Examiner having been addressed, an early and favorable action on the merits is earnestly solicited.

Respectfully submitted,

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